W.O. 8-31-01-001 (15) 8 Sept 1949 – (OCE date on 5th Ind)

Estimated Completion date – 1 April 50 (set by Mat'ls Lab)
Estimated cost – 100 manhrs (" " ")
Work Order # 2184 to Mat'ls Br. dated 22 Sept 49

9 Dec 49 – Chas Green, Materials Br, stated weathering tests on panels are underway –
Samples of Glorei paint, T 1279, & Traffic paint have been applied to concrete road outside Materials Branch –

9 Jan 50 – Roy Hill, Materials Br. stated Glorei's Basebuchrom paint failed road weathering tests – material completely disappeared in approx 1 month – T1279 & std traffic paints OK.

9 Jan 50 Above info given verbally to Mr Eaton – OCE

15 Feb 50 Report from Materials Branch # 2184-1, Evaluation of Basochrom Camouflage Paint, dated 10 Feb 50 received.

23 Feb 50 5th Ind completing W.O. sent fwd for signature.

3 Mar 50 5th Ind – fwd from E.R.D.L.

7

TECRD CMC
400.1 (8-31-01-001) (15) 5th Ind
SUBJECT: Paint Camouflage by Dr. Glaser GHS/mcb

020 (O C E)

Engineer Research and Development Laboratories, The Engineer Center and Fort Belvoir, Fort Belvoir, Virginia 2 MAR 1950

THRU: Commanding General, The Engineer Center and Fort Belvoir, Fort Belvoir, Virginia

TO: Chief of Engineers, Department of the Army, Washington 25, D. C.
ATTENTION: Chief, Engineer Research and Development Division

1. The tests on the Basochrom Camouflage Paint were conducted by the Materials Branch of the Engineer Research and Development Laboratories and the results on evaluation are contained in the inclosed copies (Inclosure 2) of Materials Branch Report No. 2184-1, Evaluation of Basochrom Camouflage Paint, dated 10 February 1950.

2. The test results show that the "Basochrom" Paint is unsatisfactory and it is recommended that no further consideration be given to this material as a Camouflage paint.

GHS

FOR THE COMMANDING OFFICER:

DON L. BURDETTE
Asst. Executive Officer
for L. M. HOOVER
Lt Colonel, CE
Executive Officer

2 Incls
1. n/c (Paint sample w/d)
Added 1 Incl
2. Evaluation Report (in dup)

Basic fwd U.S.E.R. Dayton, O.; to Dist Engr, Louisville, Ky; 22 Aug 49

	NO.
C.O.	
EXEC	3
PLANS	~~2~~
OPR	2
PLNG	
Fiscal	
C&ME	1
M&EE	
TOPO	
Tech S	
ADM	
Contr.O.	
Proc.	
Legal	
RC PC	
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OFFICER IN CHARGE

Corps of Engineers, U. S. Army

(15)

UNITED STATES ENGINEER OFFICE

P. O. Box 821

DAYTON, OHIO

8-31-01-001 22 August 1949

SUBJECT: Paint Camouflage by Dr. Glaser

TO: The District Engineer
P. O. Box 59
Louisville 1, Kentucky OVLWP

1. Forwarded herewith is correspondence and paint sample pertaining to the above subject, which were transmitted to this office as the nearest Corps of Engineers agency.

2. It is requested that suitable action toward evaluating the material be taken and results reported to the Air Materiel Command.

/s/ O. M. Haney
O. M. HANEY
Major, Corps of Engineers
Officer in Charge

1 Incl
#1. R.&.R., w/incls.

C
O
P
Y

SUBJECT: Paint Camouflage by Dr. Glaser. (Ltr fm OIC, Dayton, Ohio dtd 22 Aug 49)

OVLWP 411.6(General)97 1st Ind (15)

O Dist Engr, P. O. Box 59, Louisville 1, Ky. 25 August 1949

THRU: Div Engr ORDiv, Cincinnati, Ohio FOR OVDVA

TO: Chief of Engineers, Washington, D. C. FOR ENGTI

Paint sample and all supporting correspondence available to this office is forwarded for necessary action as the case appears to be a matter for the Engineer Research and Development Laboratories.

/s/ W. W. Wilson
W. W. WILSON
Lt. Col., Corps of Engineers
Executive Officer

1 Incl: n/c None w/d

C
O
P
Y

SUBJECT: Paint Camouflage by Dr. Glaser (Ltr, OIC, Corps of Engineers, Dayton, Ohio, dtd 22 August 1949)

411.6/58 OVDVD 2nd Ind
Div Engr, Ohio R Div, PO Box 1159, Cincinnati, Ohio 30 August 1949 (15)

TO: Chief of Engineers, Dept of the Army, Washington 25, D. C.

ENGTN

Forwarded, concurring in suggestion of the District Engineer, Louisville, that the sample be referred to the Engineer Research and Development Laboratories for investigation and report.

FOR THE DIVISION ENGINEER:

/s/ R. G. West
R. G. WEST
Asst. Division Engineer

1 Incl (sing.) n/c
(w/paint sample under sep cover)

C O P Y

TIMING AND RECORD SHEET

AIR MATERIEL COMMAND

SUBJECT: Paint Camouflage by Dr. Glaser

(15)

To: MCIAXS-4 From: MCIAXC-2 Date: 1 August 49 Comment No. 1

1. Reference is made to R&R, Comment 2, from MCIAXS, dated 15 April 49, subject; "Invention, Paint Camouflage 'Bosochfom'".

2. The attached 1st Indorsement with AA Israel letter and inclosures is forwarded to your office for evaluation. It is requested that an evaluation report be prepared and submitted by 2nd Indorsement to the Air Attache, Israel through Headquarters, USAF and coordinated with MCIAXC-2.

/s/ C. Brooke
C. C. BROOKE
Chief, Collection Section
Analysis Division
Intelligence Department

2 Incls
1. Form 75 in dup, MAD-41952
2. 1st Ind w/incls
   a. Ltr fr Dr Glaser dtd 29 Jun 49
   b. 1 Qt Samples of BOSOCHROM

To: MCREXM FROM: MCIAXS-4 9 Aug 49
ATTN: Dr. E. E. Jukkola

1. Request that the Materials Laboratory test the inclosed sample of "Basochrom" paint by the customary routine tests and for the properties claimed and suggested in the basic communication.

2. Copies of previous correspondence are inclosed for your information.

3. Request that a report of your findings be returned to this office.

A. J. HEMSTREET, JR.
Lt Colonel, USAF
Actg Chief, Analysis Division
Intelligence Department

3 Incls
Added 1 incl
3. Cys of previous corres on "Basochrom" paint

TO: TSXRE FROM: MCREXM-2 Date 16 Aug 49 Comment No. 3

Forwarded as a matter pertaining to your office.

J. B. JOHNSON
Chief, Materials Laboratory
Engineering Division

3 Incls
n/c

COORDINATION
C. W. Douglass
E. E. Jukkola

COPY

THE FOREIGN SERVICE
OF THE
UNITED STATES OF AMERICA
OFFICE OF THE AIR ATTACHE

(15)

AD-45-49 (OAA 072)

Tel Aviv, Israel
1 July 1949

SUBJECT: Invention of Camouflage Paint

TO: Director of Intelligence
Air Attache Branch
United States Air Force
Washington 25, D. C.

1. Enclosed is correspondence in answer to Specific Request for Information, your Headquarters, Control No. AMC-1310, dated 6 Jun 1949.

2. Forwarded under separate cover is one (1) quart sample of the subject material (Basochrom).

2 Incls
1. Ltr fr Dr. Glaser dtd 29 Jun 49
2. 1 Qt Sample of Basochrom (Fwd under sep cover)

/s/ WILLIAM J. CASHMAN
Captain, USAF
Acting Air Attache

AFOIR-CO-16 (AMC-1310) 1st Ind 18 Jul 1949

Dept of the Air Force, Hq., USAF, Washington 25, D. C.

TO: Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio
Attn: MCIAXC-2

Forwarded for your information and evaluation.

BY COMMAND OF THE CHIEF OF STAFF:

GEORGE D. GARRETT, JR.
Lt Col, USAF
Acting Chief, Collection Branch
Air Intelligence Requirements Division
Directorate of Intelligence

2 Incls
1. Ltr fr Dr. Glaser dtd 29 June 49
2. 1 Qt Sample of BOSOCHROM

Incl 2

C O P Y

Dr. Eng.W.Glaser
Nathanya P.O. Box 15
Tel 1140

The Foreign Service of the United States
of America, Office of the Air Attache,
American Embassy, Tel-Aviv

(15)

Dear Sir,

Your reference No. OAA 072
- - - - - - - - - - - - - - - -

I beg to refer to my visit of 27/6/49 and with reference to the questionnaire received at this occasion I submit enclosed the answers and furthermore I submit together with this letter a sample of the green camouflage painting of a medium shade.

In cases of low porosity of the concrete, the sample is to be diluted with water, it is to be applicated two times if darker shades are required, the second application being permissible already after 1-2 hours and furthermore it may be shaded with brown for the exact nuances. All this and many other practical details are much better described by practical demonstration and I believe that it may be convenient for you to give me this opportunity.

Expecting your further communication on this matter

Yours faithfully

Incl 2 a

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1. Reference is made to the "Basochrom" paint mentioned and described in the basic communication.

2. Provided that the claims made are accurate, the paint seems to be particularly well suited for the suggested uses:

(15)

a. Camouflage for airdrome runways
b. Camouflage for concrete buildings

3. Advantages: (based on information in basic communication)

a. Ease of preparation (water solution)
b. Ease of application
c. Availability (contains no critical materials)
d. Chemical inertness. Shows complete water insolubility after application. Insolubility develops only be reaction with surfaces containing calcium oxide, such as, cement, concrete, plaster, stucco, etc.
e. High covering power (1 lb, per 1080 sq. ft.)
f. Good fastness
g. Good resistance to wear.

4. Disadvantages:
a. Not usable on such surfaces as
(1) plastic
(2) wood
(3) metal
(4) cloth
(5) glazed surfaces

b. Probable need of long periods of any weather, since this insoluble-izing reaction is probably a slow one.

5. Questions for further information:

a. How much time is required for the insoluble-izing reaction to take place? What is the maximum humidity permissible?
b. What is its tinctorial power? Does the inert surface become glossy or matte?
c. What other colors are available, in addition to the suggested green?
d. Since chromium oxide is the final stable from, what possibilities does this paint have as a refractory coating?
e. As a camouflage paint, how does it react spectroscopically? How does it photograph on natural color film?
f. Can rubber tire smudges (burns) be removed?
g. What is the resistance of the paint to oil, grease, and gasoline?

6. Full evaluation of presently suggested uses, as well as many others potentially feasible can be made on ly after more detailed information is supplied. The suggestion is made that a sample of "Basochrom" be made available to a capable military testing laboratory to determine fully all potentialities and limitations of applications.

Answers to the questions regarding "Basochrom" paint (15

1. The time required for the insolubility-reaction to be completed various from 6 hours - in the case of fresh concrete - up to 36 hours, in concrete which is several years old. These limits apply only to exposure to rain to be detrimental during the time limit. Otherwise may the runway be used instantly after the painting, regarding the fact, that there is no coating which may be rubbed off, but the painting is best described as an impregnation, which penetrates into the concrete. Every degree of humidity is permissible during the above mentioned time limits, since it is only the reactivity of the calcium oxide respectively of the calcium silicates which set the spped of the insolubility reaction, but it is not a matter of drying. This is illustrated for instance by the fact, that in application of this painting to the ordinary lime-ocre-surface of most of the buildings here and in Europe, composed of very reactive Ca/OH/2 and CaCO3 the insolubility reaction is an instantaneous one.

2. 100 square feet require for a medium shade about 2 lb of the paint solution, which requires for its preparation 200 g of sodium bichromate. Therefore, the cost of the paint for 1000 sq ft can be set equal roughly to 5 lbs of bichromate, regarding the fact that the expenditure for other chemicals and for the preparation of the paint are insignificant for the estimate. Thus it can be said that the costs of the paint itself per 1000 sq ft is to correspond to about 1 dollar. The costs of the application is the same as in any other kind of painting. Regarding the high tinctorial power, as shown above, only a very small amount of chemicals are incorporated into the upper layer of the concrete and the character of the surface remains such as before.

3. The research work carried out up to now has shown that in its final stable form is the chromium found not as oxide but as calcium chromite. Only tests regarding camouflage purposes have so far been carried out i.e. resistance against light, air, moisture, abrasion. Any other use of the material would have to be a matter of further research.

4. So far I had only been asked for green and brown camouflage paintings and if you require the brown painting I shall submit this sample subsequently. The brown painting is to be used separately as well as together with the green one for shading purposes. Not all other colours but very likely all shades of colours to be required for camouflage purposes may be prepared on virtually the same lines. Regarding my industrial experience of almost 25 years in the manufacture of chromium and iron compounds I would be able to set the practical procedure for the preparation of other colours in a matter of weeks. I am able to do it whenever required as I am active only as consultant outside any permanent engagement. Please do specify the required colour shades for instance with varnish on small metal plates, which would enable me to estimate more accurately the time for the carrying out of the matter.

5. No spectroscopic tests have so far been carried out. However, regarding the fact that this painting has not the character of a coating but of a slight impregnation/viz. points 1 and 2/ it seems obvious that there will be no characteristic spectrographic picture, ile. the lines of calcium and silica will be predominant as everywhere. So far no photographs in natural colours have been carried out from this painting.

6.7. Only strong inorganic acids such as sulphuric and chlorhydric acid are able to remove this painting, as they attach the concrete as well. Benzol or toluol or other organic solvents to be used for the removal of rubber tire smudges are entirely indifferent against the chromium compound contained in the impregnation and the same applies to paint, grease, oil, (15

L-4870

SUBJECT: Paint Camouflage by Dr. Glaser

ENGNF(22 Aug 49) 3d Ind

Office of the Chief of Engineers, Washington 25, D. C., 8 September 1949

TO: Commanding General, The Engineer Center, Fort Belvoir, Virginia

1. It is requested that the sample of camouflage paint "BASOCHROM" be tested by the Engineer Research and Development Laboratories and the evaluation forwarded to this office at the earliest practicable date.

2. This work will be conducted under Project No. 8-31-01-001, Authorized Investigations, Counterintelligence.

BY ORDER OF THE CHIEF OF ENGINEERS:

1 Incl
n/c
(w/paint sample un/sep/cov)

D. G. HAMMOND
Lt Colonel, Corps of Engineers
Chief, Engr Research & Development Div
Military Operations

8-31-01-001
322.141 (DAYTON, OHIO)
822 (AMC)
CARD

TECGD 411.6 4th Ind 14 SEP 1949

Headquarters, The Engineer Center & Fort Belvoir, Fort Belvoir, Virginia

TO: Commanding Officer, Engineer Research & Development Laboratories, The Engineer Center & Fort Belvoir, Fort Belvoir, Virginia

For necessary action.

BY COMMAND OF MAJOR GENERAL WEART:

1 Incl:
n/c

R. R. JONES
WO JG USA
ASST ADJ GEN

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Y

8-31-01-001

SUBJECT: Paint Camouflage by Dr. Glaser

ENGNP(22 Nov 49) 2d Ind

Office of the Chief of Engineers, Washington 25, D. C., 29 November 1949

TO: Division Engineer, Ohio River Division, Corps of Engineers,
U. S. Army, Cincinnati, Ohio

1. Tests of Dr. Glaser's camouflage paint are scheduled for completion about 1 April 1950. Tests such as these are time consuming rather than costly. While certain data can be obtained in exposing coatings in the weatherometer, outdoor exposure is necessary when more accurate evaluations are considered to be desirable.

2. These tests are being conducted at the Engineer Research and Development Laboratories, Fort Belvoir, Virginia. When the tests have been completed a report will be forwarded.

BY ORDER OF THE CHIEF OF ENGINEERS:

D. G. HAMMOND
Lt Colonel, Corps of Engineers
Chief, Engr Res & Development Div
Military Operations

cc: ERDL

Copy to Green-Mat'l, Br.
9 Dec 49

COPY

MATERIALS BRANCH
ENGINEER RESEARCH & DEVELOPMENT LABORATORIES
THE ENGINEER CENTER AND FORT BELVOIR
FORT BELVOIR, VIRGINIA

EVALUATION OF BASOCHROM CAMOUFLAGE PAINT

Requisition No. 2184 Report No. 2184-1

Requested by: Camouflage Branch

Authority: Project No. 8-31-01-001 (15) Date: 10 Februrary 1950

SUMMARY

The purpose of this investigation was to evaluate a sample of paint, Camouflage, "Basochrom," submitted to the Air Force by Dr. Glaser, Nathanya, Palestine. This paint was found to be inferior to the standard traffic stripe and camouflage paints. Comparable laboratory formulations were found to be even better than the "Basochrom" but they, too, were inferior to the standard paints.

It is concluded that:

a. This material fails to meet Dr. Glaser's claims for it;

b. Both the "Basochrom" and the laboratory formulations are inferior to the standard traffic stripe and camouflage paints;

c. Coatings 1 and 3 are superior to the "Basochrom" and might warrant further investigation if there is a need for this type of material;

d. The "Basochrom" is inferior to pigment stains conforming to the obsolete Specification EBP No. 255.

It is recommended that no further investigation be made of the "Basochrom" material.

EVALUATION OF BASOCHROM CAMOUFLAGE PAINT

I. INTRODUCTION

1. Subject. The purpose of this investigation was to evaluate a sample of Paint, Camouflage, "Basochrom."

2. Authority. This investigation was authorized under Project No. 8-31-01-001 (15).

3. Background. A sample of "Basochrom" paint was submitted to the United States Air Attache at Tel Aviv, Palestine, by Dr. E. [illegible]. Glaser, Nathanya, Palestine. This matter was referred to the Director of Intelligence, U. S. Air Force, Washington, D. C., who in turn referred it to Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio. After passing through several hand there, it was referred to Officer in Charge, Corps of Engineers, Louisville, Kentucky, who referred it to Office, Chief of Engineers, Washington, D. C., with recommendations that it be referred to E.R.D.L. for investigation and report. Office, Chief of Engineers forwarded this sample to the E.R.D.L. and directed that it be evaluated under Authorized Investigations, Counter Intelligence.

4. Dr. Glaser calims the following properties for this material:

a. Ease of preparation (water solution);

b. Ease of application (normal brush application);

c. Availability (no critical materials);

d. Economical cost ($1.00 for 1000 sq ft coverage);

e. Good resistance to:

(1) Light

(2) Air

(3) Moisture

(4) Abrasion

(5) Benzol, Tolual or organic solvents

(6) Paint, oil, grease, gasoline, other organic materials;

f. Can be made in any desired color;

g. Impregnates the concrete or stucco and, therefore, does not change the spectrographic appearance. The final stable form is calcium chromate;

h. Its use is limited to materials containing calcium oxide, e.g., cement, plaster, and stucco.

II. INVESTIGATION

A. Procedure.

5. A preliminary analysis of the "Basochrom" paint was made to determine to which material it should be compared. Four formulations were prepared in the laboratory in order to obtain a comparable material.

6. The performance characterisitics of the "Basochrom" was compared to that of eight other coatings, described in Table I. Tests were conducted on concrete panels and also on concrete and asphalt roadways. The panels and roadway surfaces were first thoroughly brushed to remove loose diret and dust, and then the coatings were applied to the surfaces by brush coating in such a manner as to get good coverage. No solvent nor acid pretreatment was used. The test specimens were then subjected to the following exposure conditions:

a. Abrasion on the Hickson Traffic Abrader;

b. Outdoor exposure on roof, 30 days;

c. Static immersion in water, 30 days;

d. Humidity Cabinet, 30 days at 95°F, 100% R.H.;

e. Accelerated Weathering, 300 hour;

f. Roadway traffic stripes, 30-day out-door exposure, limited traffic conditions.

B. Results.

7. The results of the preliminary laboratory analysis reveal the following information on "Basochrom":

a.	Weight, gallon	10.29 lbs
b.	Non-volatile matter	30%
c.	Insoluble matter	0.9%
d.	Vehicle	water
e.	Solution	alkaline to litmus

8. Table II lists the results of the exposure tests. Photographs 1 to 4 shown resistance of the materials to actual traffic wear on both concrete and asphalt surfaces, while Photographs 5 and 6 showmthe coatings before and after testing on the Hickson Traffic Abrader.

III. DISCUSSION

9. This investigation shows that the "Basochrom" paint is not similar in nature to any of the standard camouflage paints used by the Corps of Engineers. The most nearly comparable material was that covered by tentative Specification EBP 255, Pigment Stains, Water Dispersible. However this material was never adopted as standard and the specification was cancelled.

10. The results of the exposure tests, as shown in Table II and photographs 1 through 6, show this material to be definitely inferior to the standard traffic marking paints. It is also true that laboratory formulations made up to be comparable to the "Basochrom" paint fail to stand up under these tests even though Coatings 1 and 3 show much better wear resistance than the "Basochrom."

IV. CONCLUSIONS

11. It is concluded that:

a. This material fails to meet Dr. Glaser's claims for it;

b. Both the "Basochrom" and the laboratory formulations are inferior to the standard traffic stripe and camouflage paints;

c. Coatings 1 and 3 are superior to the "Basochrom" and might warrant further investigation if there is a need for this type of material;

d. The "Basochrom" is inferior to pigment stains conforming to the obsolete Specification EBP No. 255.

V. RECOMMENDATIONS

12. It is recommended that no further investigation be made of the "Basochrom" material.

Submitted by: Harvey Miller
HARVEY MILLER
Protective Coatings Section

Roy W Hill
ROY W. HILL, Chief
Protective Coatings Section

Forwarded by: Arthur W Van Heuckeroth 6/24
ARTHUR W. VAN HEUCKEROTH
Chief, Materials Branch

TABLE I

Coating	Formulation or Identification
1	32 gms chromium oxide 1 fl oz Zincilate Liquid*
2	50 gms chromium sulphate 50 gms sodium silicate, 40° Be 10 gms chromium oxide (green)
3	50 gms chromium sulphate 10 gms chromium oxide (green) 50 gms Saran F 122 A-20 Latex
4	Basochrom paint
5	Camouflage paint conforming to Corps of Engineers Specification T 1279 D Dilution: 1:1
6	32 gms chromium oxide 1 fl oz Saran F 122 A-20 Latex 1 fl oz Zincilate Liquid*
7	Traffic paint, yellow, conforming to Federal Specification TT-P-115.
8	Traffic paint, white, conforming to Federal Specification TT-P-115
9	Pigment stains, conforming to Corps of Engineers Tentative Specification EBP #255, No. 1 Light green

*Manufactured by Industrial Metal Protectives, Dayton, Ohio

TABLE II

APPEARANCE AFTER EXPOSURE

EXPOSURE	COATINGS 1	2	3	4	5	6	7	8	9
riginal Appearance	good	good	good	good except for a few light spots	good	good	good	good	good
ickson Traffic Abrader	3rd best	4th best	5th best	7th best	2nd best	best	abrasion	resistance	6th best
oof Exposure	no effect	no effect	no effect	complete loss of color	no effect	----	no effect	no effect	no effec
ater Immersion	white deposit on waterline	white deposit on waterline	white deposit on water line	white deposit on waterline loss of color below water-line	white deposit on waterline loss of color below water-line	----	no effect	no effect	white de on water loss of below wa line
midity Cabinet	slight leach-ing of color on edges	no effect	no effect	leaching in spots	some fading and loss of color	----	no effect	no effect	no effec
celerated eathering	no effect	no effect	nn effect	fading and loss of color	some fading and loss of color	----	no effect	some yellow-ing and steaking	no effec
adway Traffic Stripe - Concrete	fair con-dition	barely vixible	barely visible	entirely gone	barely visible	----	good appearance	good appearance	barely visible
phalt	barely visible	entirely gone	----	entirely gone	entirely gone	----	good appearance	good appearance	entirely gone